The Abdus Salam
International Centre for Theoretical Physics

United Nations
Educational, Scientific
and Cultural Organization

International Atomic
Energy Agency

SMR.1769-6

SCHOOL OF NUCLEAR KNOWLEDGE MANAGEMENT

18-22 September 2006

Introduction to IT tools to support knowledge management

T. MAZOUR
International Atomic Energy Agency
Division of Nuclear Power
Nuclear Power Engineering Section
A-1400 Vienna
AUSTRIA

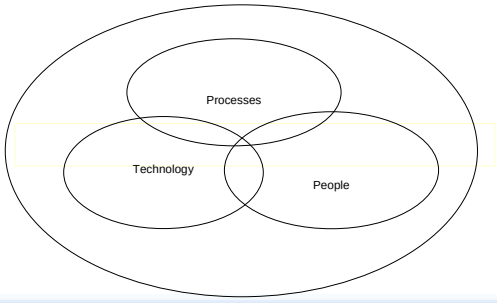
Introduction to IT Tools to Support Knowledge Management

Tom Mazour
(t.mazour@iaea.org)
IAEA
Division of Nuclear Power

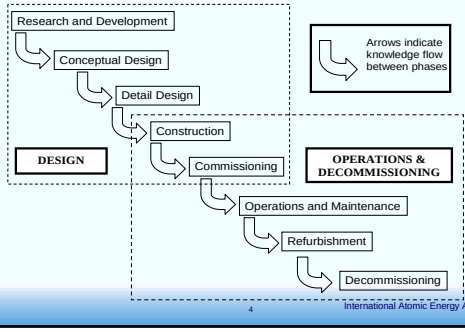
Contents

- Review models and context for KM
- Identify where IT has a role in KM
- Discuss lessons learned regarding IT support for KM
- Present some KM projects and their IT support
- Review conclusions regarding IT's role in KM

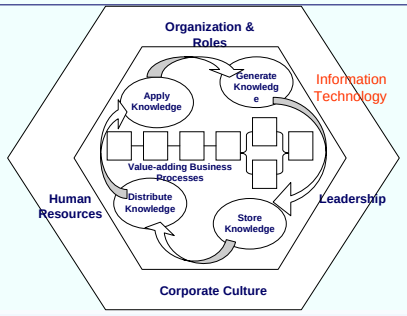
An Organizational Context For KM



Knowledge transfer through a nuclear facility's lifecycle



Model for knowledge management



Knowledge Continuum

Explicit Knowledge — Tacit Knowledge

Complete Articulability:

Strategy → Capture

CODIFICATION

Limited Articulability:

Strategy → Connectivity, People as Knowledge Repositories

PERSONALIZATION

Knowledge preservation and transfer strategies

Documentation

Exit-Interview

De-Briefing

Internal

Redundancy

Tandem (Mentoring)

Communities of Practice

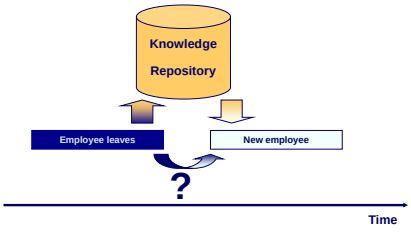
External

External Experts

CODIFICATION

PERSONALIZATION

Codification: Creating a Knowledge Repository



Knowledge management elements for a nuclear industry operating organization

- Plant policies and procedures
- Document control system
- Configuration management system
- Human resource management
- Training and qualification programmes
- Learning from operating experience
- Work control system
- Corrective action system
- Communication systems

What is the role of IT for each of these elements?

KM should improve the value to the organization of existing programmes through:

- Identifying risks due to knowledge gaps
- Increasing the value of existing knowledge
- Converting tacit knowledge to explicit knowledge
- Continually learning in a smart and lasting way
- access to more, and more reliable knowledge/information

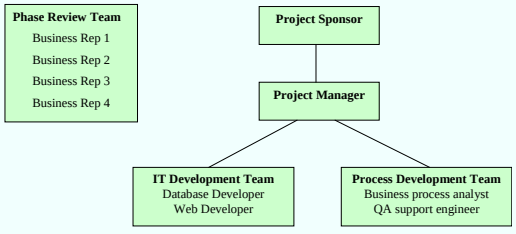
What role should IT have regarding these?

IT solutions supporting KM: Lessons Learned

- IT strategy should be based upon achieving KM objectives
- IT can be used effectively to share knowledge critical to the organization's mission
- IT products and services should be developed based upon customer KM needs
- not all KM needs can be addressed through IT solutions

Conclusion: IT isn't KM, it is a KM tool !

Example KM Project Structure



Knowledge: An individual's perspective

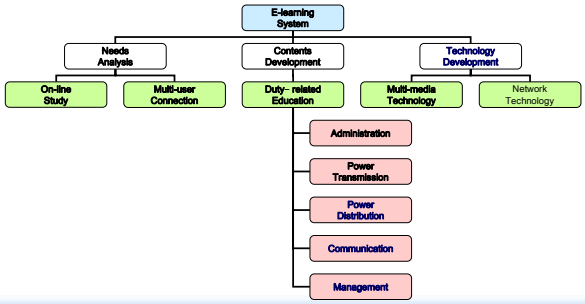
- A person's capacity to act can be seen as the result of a five-fold integration process by which several kinds of knowledge are integrated:

  - technical expertise
  - methodological knowledge
  - social competence (getting along with others)
  - meta-knowledge (knowing where)
  - experience.

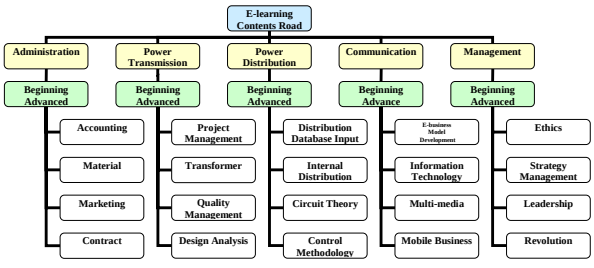
Knowledge: An Individual's Perspective

- All knowledge an individual has is the result of a personal learning history.
- Learning is always shaped by the context in which a person's learning takes place.
- Learning and knowledge accumulated in a certain context may not be actionable in a different context.
- Thus, organizational context always has to be considered as a variable in knowledge transfer and preservation activities.

Example E-Learning Structure



Example E-learning contents map



People-Based Knowledge Repository: Community of Practice

Conclusions

- IT isn‘t KM, it is a KM tool !
- KM Projects shouldn‘t be managed by the IT organization